

CLAIMS:

1. Apparatus for immersing material or materials ("material(s)") in a bath, said material(s), said apparatus comprising or including

a reservoir containing or to contain a liquid as said bath,

5 a flighted endless conveyor that serially present flights to a loading zone where each flight serially flight receives thereon material(s) to be immersed in the liquid of the bath and later presents material(s) initially received by the preceding flight to a discharge zone from whence the material(s) leave the flight,

10 wherein the loading zone to discharge zone involves an initial flight supported lowering of the materials and thereafter a following flight uplifting of the material(s) and/or liquid in the bath until such time as the materials are supported by said following flight out of the liquid of the bath and carried at least in part thereby to the discharge zone.

2. Apparatus of claim 1 wherein said liquid is one in which said material(s) is(are) buoyant.

3. Apparatus of claim 1 or 2 wherein the discharge zone involves a gravity supported cascading of the materials from said following flight.

15 4. Apparatus of any one of the preceding claims wherein each flight at least substantially completely occludes a passageway through the bath defined by the conveyor and the reservoir.

20 5. Apparatus of any one of the preceding claims wherein the locus of movement of the endless conveyor is that of an inverted conveyor preferably substantially in the form of an inverted "j", the loading zone being at a region beyond the crook of the inverted "j" down which the flights move substantially on a vertical locus prior to ascending on the opposite side of the stem of the "j" and then into the overhang zone of the inverted "j" at which there is the discharge zone.

25 6. Apparatus of any one of claims 1 to 4 wherein the locus of movement of the endless conveyor is such that there is in use a vertical or near vertical descending from the loading zone, irrespective of whether or not there is a vertical or near vertical ascending from the lower most zone and irrespective of whether or not there is any overhand (and irrespective of any concavity or not in the locus).

30 7. Apparatus of any one of the preceding claims substantially as hereinbefore described with reference to one or both of the accompanying drawings.

8. The use of a flighted endless conveyor for the purpose of immersing materials in a bath.

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9. The use of claim 8 wherein the materials are buoyant in the liquid of the bath and an underside of flights of the conveyor lowers the materials in the liquid.
10. The use of claim 8 or 9 using apparatus of any one of the claims 1 to 6.
11. The use of any one of claims 8 to 10 wherein the immersion is of apple pieces during a process as disclosed in PCT/NZ02/00168.
- 5 12. The use of any one of claims 8 to 11 wherein the bath periphery conforms at least in part to those regions of the conveyor that are to lower the materials into, to carry the materials through, and uplift the materials from, the liquid of the bath.
- 10 13. The use of apparatus of any one of claims 1 to 7 for the purpose of dipping vegetable and/or fruit material in an appropriate dipping solution.
14. Dipping apparatus substantially as herein described with reference to either one or both of accompanying drawings.
15. A method of dipping materials when performed substantially as herein described with reference to either one or both of the accompanying drawings or the description generally.
16. A method of treating vegetable and/or fruit materials which comprises or includes immersing the materials in a treating liquid under the action of a flighted endless belt conveyor.
17. A method of claim 16 wherein an underside of one flight contacts, during at least an initial part of the immersion process in a bath, at least some of the materials which prior to immersion were lowered on the upperside of the flight preceding said one flight.
- 20 18. Materials treated by a method of any one of claims 15 to 17, apparatus of any one of claims 1 to 7 or a use of any one of claims 8 to 13.